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| 20 | Asn 305 | Lys | His | Val | Lys | Tyr 310 | Leu | Tyr | Ile | Pro | Tyr 315 | Thr | Asp | Thr | Val | Val 320 | |
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| 45 | <213> Arabidopsis thaliana | | | | | | | | | | | | | | | | |
| | <400> 12 | | | | | | | | | | | | | | | | |
| | atgacgaaaa | tagagcttcg | agctttgggg | aacacagggc | ttaagggttag | cgccggttggt | 60 | | | | | | | | | | |
| | tttggtgcct | ctccgctcgg | aagtgtcttc | ggtccagtcg | cgaagatga | tgccgtcggc | 120 | | | | | | | | | | |
| 50 | accgtgcgcg | aggctttccg | tctcggtatc | aacttcttcg | acacctcccc | gtattatgga | 180 | | | | | | | | | | |
| | ggaacactgt | ctgagaaaat | gcttggttag | ggactaaagg | ctttgcaagt | ccctagaagt | 240 | | | | | | | | | | |
| | gactacattg | tggctactaa | gtgtggtaga | tataaagaag | gttttgattt | cagtgcctgag | 300 | | | | | | | | | | |
| | agagtaagaa | agagtattga | cgagagcttg | gagaggcttc | agcttgatta | tggtgacata | 360 | | | | | | | | | | |
| | cttcattgcc | atgacattga | gttcgggtct | cttgatcaga | ttgtgagtga | aacaattcct | 420 | | | | | | | | | | |
| 55 | gctcttcaga | aactgaaaca | agaggggaag | acccgggttc | ttggtatcac | tggtcttccg | 480 | | | | | | | | | | |
| | ttagatatatt | tcacttatgt | tcttgatcga | gtgcctccag | ggactgtcga | tgtgatattg | 540 | | | | | | | | | | |
| | tcatactgtc | attacggcgt | taatgattcg | acgttgctgg | atttactacc | ttacttgaag | 600 | | | | | | | | | | |

5 agcaaaggtg tgggtgtgat aagtgttct ccattagcaa tgggcctcct tacagaacaa 660
 ggtcctcctg aatggcaccc tgcttcccct gagctcaagt ctgcaagcaa agccgcagtt 720
 gctcactgca aatcaaaggg caagaagatc acaaagttag ctctgcaata cagtttagca 780
 aacaaggaga ttctgtcggt gttgggtggg atgagctctg tctcacaggt agaagaaaat 840
 gttgcagcag ttacagagct tgaaagtctg gggatggatc aagaaactct gtctgagggt 900
 gaagctattc tcgagcctgt aaagaatctg acatggccaa gtggaatcca tcagaactaa 960

10 <210> 13
 <211> 18
 <212> PRT
 <213> Artificial Sequence

15 <220>
 <223> Description of Artificial Sequence: motif I of
 aldo-keto reductase superfamily

20 <400> 13
 Gly Xaa Arg Xaa Xaa Asp Xaa Ala Xaa Xaa Xaa Xaa Xaa Glu Xaa Xaa
 1 5 10 15
 Xaa Gly

25 <210> 14
 <211> 30
 <212> DNA
 <213> Artificial Sequence

30 <220>
 <223> Description of Artificial Sequence: Forward PCR
 Primer for L-galactono-1,4-lactone dehydrogenase
 from A. thaliana

35 <400> 14
 caagaaggcc taaatgttcc gttacgctcc 30

40 <210> 15
 <211> 30
 <212> DNA
 <213> Artificial Sequence

45 <220>
 <223> Description of Artificial Sequence: Reverse PCR
 Primer for L-galactono-1,4-lactone dehydrogenase
 from A. thaliana

50 <400> 15
 atgggccctt aagcagtggg ggagactggg 30

55 <210> 16
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<400> 20
Met Ser Ser Ser Val Ala Ser Thr Glu Asn Ile Val Glu Asn Met Leu
1 5 10 15

5 His Pro Lys Thr Thr Glu Ile Tyr Phe Ser Leu Asn Asn Gly Val Arg
20 25 30

Ile Pro Ala Leu Gly Leu Gly Thr Ala Asn Pro His Glu Lys Leu Ala
35 40 45

10 Glu Thr Lys Gln Ala Val Lys Ala Ala Ile Lys Ala Gly Tyr Arg His
50 55 60

Ile Asp Thr Ala Trp Ala Tyr Glu Thr Glu Pro Phe Val Gly Glu Ala
15 65 70 75 80

Ile Lys Glu Leu Leu Glu Asp Gly Ser Ile Lys Arg Glu Asp Leu Phe
85 90 95

20 Ile Thr Thr Lys Val Trp Pro Val Leu Trp Asp Glu Val Asp Arg Ser
100 105 110

Leu Asn Glu Ser Leu Lys Ala Leu Gly Leu Glu Tyr Val Asp Leu Leu
115 120 125

25 Leu Gln His Trp Pro Leu Cys Phe Glu Lys Ile Lys Asp Pro Lys Gly
130 135 140

Ile Ser Gly Leu Val Lys Thr Pro Val Asp Asp Ser Gly Lys Thr Met
145 150 155 160

Tyr Ala Ala Asp Gly Asp Tyr Leu Glu Thr Tyr Lys Gln Leu Glu Lys
165 170 175

35 Ile Tyr Leu Asp Pro Asn Asp His Arg Val Arg Ala Ile Gly Val Ser
180 185 190

Asn Phe Ser Ile Glu Tyr Leu Glu Arg Leu Ile Lys Glu Cys Arg Val
195 200 205

40 Lys Pro Thr Val Asn Gln Val Glu Thr His Pro His Leu Pro Gln Met
210 215 220

Glu Leu Arg Lys Phe Cys Phe Met His Asp Ile Leu Leu Thr Ala Tyr
225 230 235 240

Ser Pro Leu Gly Ser His Gly Ala Pro Asn Leu Lys Ile Pro Leu Val
245 250 255

50 Lys Lys Leu Ala Glu Lys Tyr Asn Val Thr Gly Asn Asp Leu Leu Ile
260 265 270

Ser Tyr His Ile Arg Gln Gly Thr Ile Val Ile Pro Arg Ser Leu Asn
275 280 285

55 Pro Val Arg Ile Ser Ser Ser Ile Glu Phe Ala Ser Leu Thr Lys Asp
290 295 300

Glu Leu Gln Glu Leu Asn Asp Phe Gly Glu Lys Tyr Pro Val Arg Phe
305 310 315 320

5 Ile Asp Glu Pro Phe Ala Ala Ile Leu Pro Glu Phe Thr Gly Asn Gly
325 330 335

Pro Asn Leu Asp Asn Leu Lys Tyr
340

10

<210> 21
<211> 1509
<212> DNA
15 <213> *Saccharomyces cerevisiae*

<400> 21
taacaatttc gtttactgaa aatgctacta gtatataatc attaagtatc taactatcac 60
tcaatāāāāā tattatagat cgcttaāāāāā ctcgtttatt gccgattata aatccaccaa 120
20 aagccgctct acccttacct ccgcctggaa aaattataat atataaagtg agcctcgtaa 180
tacaggggta aaaaggaaag agggggatat caagcatctg gacttatttg cactatctcc 240
gccttcaatt gataaaagcg tcttgatttt aatcaactgc tatcatgtct tcttcagtag 300
cctcaaccga aaacatagtc gaaaatatgt tgcacccaaa gactacagaa atatactttt 360
cactcaacaa tgggtgttcgt atcccagcac tgggtttggg gacagcaaat cctcacgaaa 420
25 agtttagctga aacaaaacaa gccgtaaaag ctgcaatcaa agctggatac aggcacattg 480
atactgcttg ggcctacgag acagagccat tcgtaggtga agccatcaag gagttattag 540
aagatggatc tatcaaaagg gaggatcttt tcataaccac aaaagtgtgg ccggttctat 600
gggacgaagt ggacagatca ttgaatgaat ctttgaaagc tttaggcttg gaatacgtcg 660
acttgctctt gcaacattgg ccgctatggt ttgaaaagat taaggaccct aaggggatca 720
30 gcggactggg gaagactccg gttgatgatt ctggaaaaac aatgtatgct gccgacggcg 780
actatttaga aacttacaag caattggaaa aaattttacct tgatcctaac gatcatcggtg 840
tgagagccat tgggtgtctca aatttttcca ttgagtattt ggaacgtctc attaaggaat 900
gcagaggtta gccaacgggtg aaccaagtgg aaactcacc tcacttacca caaatggaac 960
taagaaagt ctgctttatg cacgacattc tgtaaacagc atactcacca ttaggttccc 1020
35 atggcgcacc aaacttgaaa atcccactag tgaaaaagct tgccgaaaag tacaatgtca 1080
caggaaatga cttgctaatt tcttaccata ttagacaagg cactatcgta attccgagat 1140
ccttgaatcc agttaggatt tcctcgagta ttgaattcgc atctttgaca aaggatgaat 1200
tacaagagtt gaacgacttc ggtgaaaaat acccagtgag attcatcgat gagccatttg 1260
cagccatcct tccagagttt actggtaacg gaccaaactt ggacaattta aagtattaag 1320
40 acaacgactt tattttact ttatttagtt cgcttcttaa tcttgtaaaa aacaagatat 1380
tgtgtaatcg cctcaagtaa acaatatggt tttcatacgt gatttgaagt ttttaagtat 1440
ctgaaatata tacgcgcgcg tatgcatatg tattagttaa attactcgaa tgtcctttat 1500
ataatatta 1509

45

<210> 22
<211> 23
<212> DNA
50 <213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Forward PCR
Primer for L-galactose dehydrogenase from A.
thaliana

55

<400> 22
atgacgaaaa tagagcttcg agc

5 <210> 23
 <211> 24
 <212> DNA
 <213> Artificial Sequence

10 <220>
 <223> Description of Artificial Sequence: Reverse PCR
 Primer for L-galactose dehydrogenase from *A.*
 thaliana

15 <400> 23
 ttagttctga tggattccac ttgg 24

20 <210> 24
 <211> 24
 <212> DNA
 <213> Artificial Sequence

25 <220>
 <223> Description of Artificial Sequence: *Saccharomyces*
 cerevisiae

 <400> 24
 atgtcttctt cagtagcctc aacc 24

30 <210> 25
 <211> 29
 <212> DNA
 <213> Artificial Sequence

35 <220>
 <223> Description of Artificial Sequence: Reverse PCR
 Primer for D-arabinose dehydrogenase from *S.*
 cerevisiae

40 <400> 25
 ttaatacttt aaattgtcca agtttggtc 29

45 <210> 26
 <211> 4
 <212> PRT
 <213> Artificial Sequence

50 <220>
 <223> Description of Artificial Sequence: motif II of
 aldo-keto reductase superfamily

55 <400> 26
 Gly Xaa Xaa Asn
 1

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